

HEALTH AND SAFETY PLAN

RADIOLOGICAL OVERSIGHT AND SPLIT SOIL SAMPLING

Hunters Point Naval Shipyard
San Francisco, California

Prepared for:

U.S. Army Corps of Engineers
San Francisco District
Attn: Mr. Dan McMindes
450 Golden Gate Avenue
San Francisco, California



Prepared by:

Adanta, Inc.
1100 Lincoln Avenue, #206
Napa, California 94558
www.Adanta-Inc.com
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Acronyms and Abbreviations

°F	Degree Fahrenheit
Adanta	Adanta, Inc.
CDC	Centers for Disease Controls
CIH	Certified Industrial Hygienist
COVID-19	Coronavirus Disease 2019
CRZ	Construction Reduction Zone
EPA	United States Environmental Protection Agency
HASP	Health and Safety Plan
HPNS	Hunters Point Naval Shipyard
HR	Heart Rate
HSM	Health and Safety Manager
PM	Project Manager
PPE	Personal Protective Equipment
ROC	Radionuclide of Concern
SSHO	Site Safety and Health Officer
TU	Trench Unit



1.0 INTRODUCTION

The objective of this Health and Safety Plan (HASP) is to provide the safety and health requirements, restrictions, practices, and procedures for Adanta, Inc. (Adanta) personnel and its subcontractors participating in environmental investigation activities.

This HASP supplements the information provided in Appendix A (Site Health and Safety Plan) of Final Quality Assurance Project Plan for Parcel G Removal Site Investigation Split Soil Sampling, Hunters Point Naval Shipyard, San Francisco, California (TechLaw, 2019) and to support the project tasks associated with the activities of the field work. It has been developed using the latest available information regarding known or suspected chemical contaminants and potential physical hazards associated with the proposed work at the site. Should the proposed site conditions and/or suspected hazards change, or if new information becomes available, this document will be modified. Site-specific training and Tailgate Safety meeting will be used to communicate the changes to all persons participating in project related activities.

1.1 KEY PROJECT PERSONNEL AND ORGANIZATION

All personnel assigned to participate in the field work have the responsibility for performing work tasks in a manner that is consistent with the Adanta Health and Safety Policy, the health and safety training that they have received, the contents of this HASP, and in a manner that protects their personal safety and health and that of their coworkers.

1.1.1 Adanta Project Manager (PM)

The Adanta PM is responsible for the overall direction of health and safety for this project including the following functions:

- Ensuring signed and approved documents are onsite and accessible to all employees and subcontractor personnel.
- Ensuring recordkeeping meets the objectives and requirements of the project and HASP. This activity includes monitoring field documentation to guarantee adequate health and safety practices and action items are properly implemented.
- Coordinating with project and facility personnel to implement emergency action/response procedures where necessary.
- Verifying corrective actions are implemented where identified through self-assessments
- Providing for appropriate monitoring, personal protective equipment (PPE), decontamination materials, and other project necessities.



- His/her role is to ensure if a deficiency is noted, the appropriate control measures are instituted, and that this information is communicated to all project personnel to make sure the deficiency does not happen again. Lessons learned are to be communicated in daily progress meetings or during daily Tailgate Safety Meetings.

1.1.2 Adanta Health and Safety Manager (HSM)

The Adanta HSM is responsible for providing the Adanta PM with assistance and support regarding all regulatory and safety aspects of site activity. The HSM is responsible for the following:

- Overseeing the development and subsequent implementation of the HASP in accordance with applicable Occupational Safety and Health Administration regulations.
- Determining emergency action or response procedures as well as identifying emergency contacts and resources nearest to the site to facilitate immediate lifesaving or non-life-threatening care.
- Identifying general training requirements; location specific training requirements, as well as task specific training requirements.
- Remaining available for project emergencies.
- Approving/signing this HASP document indicating reviewed and approved.
- Modifying this HASP, as it becomes necessary.
- Following up on information generated through audits/evaluations to ensure corrective measures have been completed and are effective.
- Serving as the arbitrator and final authority as it may pertain to dispute resolution regarding health and safety issues associated with this project.

It is the responsibility of the Adanta HSM to conduct or provide technical support during the execution of onsite ongoing field operations to ensure the objectives of the HASP are being met.

1.1.3 Adanta Site Safety and Health Officer (SSHO)

The Adanta SSHO is appointed by the PM to be responsible for providing job safety inspections and monitoring overall job site safety. The SSHO is responsible for conducting daily site safety meetings, evaluating working conditions and making recommendations to the PM and HSM to modify health and safety procedures; enforcing all site-specific health and safety procedures; and observing field team members for signs of exposure, stress, or other conditions related to pre-existing physical conditions and site work activities. The SSHO will make sure that all field and health and safety forms are completed daily and will establish communication with the emergency



response teams in an emergency. The SSHO is considered the competent person for the tasks discussed in this HASP. In addition, the SSHO will inspect all personal protective equipment (PPE) used onsite.

1.1.4 Adanta Employees and Subcontractor Personnel

Adanta and subcontractor employees are responsible for the following:

- Understanding and following direction provided in this HASP, Work Plan and other project documents and as provided under the HSM or PM.
- Reporting unsafe conditions or incidents to the PM.
- Completing/meeting necessary training and medical surveillance requirements.
- Attending site-specific training and periodic safety meetings.

1.2 STOP WORK AUTHORIZATION

All employees and subcontractors are empowered, authorized, and responsible to stop work at any time when an imminent and uncontrolled safety or health hazard is perceived. In a Stop Work event (immediately after the involved task has been shut down and the work area has been secured in a safe manner) the responsible individual will contact the PM and the HSM. Through observations and communication, all parties involved shall then develop, communicate, and implement corrective actions necessary and appropriate to modify the task and to resume work.

1.3 SITE INFORMATION AND PROJECT TEAM

Adanta has prepared this HASP to conduct an environmental site investigation at the former Hunters Point Naval Shipyard (HPNS), San Francisco, California. The site investigation will consist of field oversight of the Navy contractor's collection of sample and independent analysis of split soil samples for radiological characterization.

Table 1-1 Adanta Project Team

Parveen Kumar	Parveen.Kumar@Adanta-inc.com	(707) 709-8894	PM/Environmental Engineer
Peter Jaramillo, Certified Industrial Hygienist (CIH)	Peter.Jaramillo@Adanta-inc.com	(925) 984-6561	HSM
Archer Cummins	Arch.Cummins@Adanta-inc.com	(757) 748-4117	Health Physics Supervisor/Site Safety and Health Officer (SSHO)



It is possible that individuals listed above will participate in multiple roles during the onsite activities.



2.0 EMERGENCY ACTION PLAN

2.1 INTRODUCTION

This section has been developed as a planning effort to direct and guide field personnel in the event of an emergency that is outside of the field team's ability to respond based on training, nature of the incident, or sufficient supplies in which to respond. In such an event, the field team will primarily evacuate and assemble to an area unaffected by the emergency and notify the appropriate local emergency response personnel/agencies.

Workers who are ill or who have suffered a non-serious injury may be transported by site personnel to nearby medical facilities, provided that such transport does not aggravate or further endanger the welfare of the injured/ill person. The emergency response agencies listed in this plan can provide the most effective response, and as such, will be designated as the primary responders. These agencies are located within a reasonable distance from the area of site operations, which ensures adequate emergency response time. Adanta and subcontractor personnel may participate in minor event response and emergency prevention activities such as the following:

- Initial fire-fighting support and prevention.
- Initial spill control and containment measures and prevention.
- Removal of personnel from emergency situations.
- Provision of initial medical support for injury/illness requiring only first-aid level support.
- Provision of site control and security measures, as necessary.

2.2 EMERGENCY PLANNING

Through the initial hazard/risk assessment effort, the following are considered emergencies that could occur as they are inherent with the tasks to be completed; the following represent conditions and/or occurrences in which are considered emergencies and are beyond the capabilities of the field personnel:

- Vehicle accident
 - Any vehicle accident including vehicle versus worker or vehicle versus vehicle will require the support and assistance of the local law enforcement.
 - Personnel will provide emergency rescue, where possible.
 - Limited first aid to the person's knowledge to stabilize.
 - Provide scene security until law enforcement arrives.
- Inclement weather
 - All electrical storms will require all work to cease until the storm passes. Use support means (radios or cell phones) and the 30/30 rule for assessing actions to be employed.



2.3 EMERGENCY RECOGNITION AND PREVENTION

Recognition will be conveyed through site-specific training and tailgate safety meetings. Hazards will be described, and personnel will be instructed on what to look for and what pre-measures are to be in place prior to the commencement of fieldwork.

To adequately recognize chemical exposure, site personnel must have a clear knowledge of signs and symptoms of exposure associated with the principle site contaminants of concern as presented in this HASP. Early recognition of hazards will be supported by daily site surveys to eliminate any situation predisposed to an emergency.

Adanta and subcontractors will minimize the potential for emergencies by following this HASP.

2.4 EVACUATION ROUTES, PROCEDURES, AND PLACES OF REFUGE

An evacuation will be initiated whenever recommended hazard controls are insufficient to protect the health, safety, or welfare of site workers. Specific examples of conditions that may initiate an evacuation include, but are not limited to the following:

- Severe weather.
- Utility damage.
- Injury requiring removal from the field.

In the event of an emergency requiring evacuation, personnel will immediately stop activities, provide life-saving support as needed, and report to the designated safe place of refuge, unless doing so would pose additional risks. When evacuation to the primary place of refuge is not possible, personnel will proceed to a designated alternate location, and remain until further notification. Safe places of refuge will be identified prior to the commencement of site activities and will be conveyed to personnel at the tailgate safety meeting.

2.5 EMERGENCY CONTACTS

Prior to initiating field activities, personnel will be briefed on the emergency procedures to be followed in the event of an accident. Table 2-1 provides a list of emergency contacts and their associated telephone numbers. This table must be posted where it is readily available to site personnel. Facility maps should also be posted showing potential evacuation routes and designated meeting area.



Table 2-1 Emergency Contact Information

Contact	Telephone Number
EMERGENCY (Police, Fire, Ambulance)	911
Zuckerberg San Francisco General Hospital	(628) 206-8000
Chemtrec	(800) 262-8200
National Response Center	(800) 424-8802
<i>HSM</i> Peter Jaramillo, CIH	(707) 709-8894
<i>Onsite Field Team Lead/SSHO</i> Archer Cummins	(757) 748-4117
<i>PM</i> Parveen Kumar, PE	(707) 709-8894

2.6 EMERGENCY ROUTE TO HOSPITAL

Zuckerberg San Francisco General Hospital and Trauma Center, 1001 Potrero Avenue,
San Francisco, CA 94110

From Project Site:

1. Head **northwest** on **Crisp Rd.**
Then 0.6 mi
2. Slight **right** onto **Palou Ave**
Then 1.0 mi
3. Turn **right** onto **Phelps St**
Then 279 ft
4. Turn **left** at the 1st cross street onto **Oakdale Ave**
Then 1.70 mi
5. Turn **right** onto **Bayshore Blvd**
Then 0.3 mi
6. Take the **Potrero Ave ramp** on the left
Then 0.1 mi
7. Keep **right** at the fork, follow signs for the **Potrero Ave**
Then 220 ft
8. Continue onto **Potrero Ave**
Then 0.3 mi
9. Turn **right** onto **23rd St**
Then 367 ft
10. Turn **left**
Then 312 ft to Zuckerberg San Francisco General Hospital and Trauma Center



Figure 2-1: Directions to Hospital



2.7 EMERGENCY ALERTING AND ACTION/RESPONSE PROCEDURES

An emergency evacuation will require the following:

- Initiate the evacuation via hand signals, voice commands, or line of site communication.
- Report to the designated safe refuge location where the PM will account for all personnel.
- Once non-essential personnel are evacuated, appropriate response procedures will be enacted to control the situation.

If site personnel cannot mitigate the hazardous situation, the PM will enact emergency notification procedures to secure additional assistance in the following manner:

- Dial 911 and call other pertinent emergency contacts listed in Table 2-1 and report the incident.
- Stay on the phone and follow the instructions given by the operator.
- The operator will then notify and dispatch the proper emergency response agencies.

2.8 DECONTAMINATION PROCEDURES / EMERGENCY MEDICAL TREATMENT

During any evacuation, decontamination procedures will be performed only if doing so does not further jeopardize the welfare of field workers. Decontamination will be postponed if the incident warrants immediate evacuation.

Adanta personnel will perform rescue operations from emergency situations and may provide initial medical support for injury/illnesses requiring only "Basic First-Aid" level support, and only within the limits of training obtained by field personnel.

2.9 INJURY/ILLNESS REPORTING

If any Adanta personnel are injured or develop an illness because of working onsite, the Adanta Injury and Illness Prevention Program and Incident Report Form must be followed. Following this procedure is necessary for documenting of the information obtained at the time of the incident. Any pertinent information regarding allergies to medications or other special conditions will be provided to medical services personnel. This information is listed on Medical Data Sheets filed onsite. If an exposure to hazardous materials has occurred, provide information on the chemical, physical, and toxicological properties of the subject chemical(s) to medical service personnel.



3.0 SITE BACKGROUND

HPNS was expanded over time using fill materials with a range of concentrations of naturally occurring radioactive material (also known as NORM). The Navy's Radiological Defense Laboratory conducted radiological experiments including attempts to decontaminate radiologically contaminated ships from Operation Crossroads and experiments on equipment and animals to test the effects of radiation. Some liquid radiological wastes were discharged to the storm drains and sanitary sewers while other liquid wastes were stored in underground storage tanks. Radiological objects were manufactured at HPNS for use as deck markers and buttons to identify significant areas during blackout conditions, particularly during World War II. These devices were discarded in many areas on site, although many of them were buried in the IR-02 Northwest and Central Radium Dial Disposal Area. Construction, storm drain and sanitary sewer separation projects, and remediation projects over the past 60 years have disturbed the surface and subsurface soil, deciding background concentrations for anthropogenic radionuclides from fallout difficult.

Data manipulation and falsification were committed by a contractor during past removal investigations for sanitary sewers and storm drains and former building locations. The Navy, United States Environmental Protection Agency (EPA), and State agencies evaluated soil data and found evidence of potential manipulation and falsification. The findings call into question the reliability of soil data, and there is uncertainty whether radiological contamination was present or remains in place. Based on the uncertainty and the description of radiological activities in the Historical Radiological Assessment, there is a potential for residual radioactivity to be present in soil at concentrations requiring remediation. Therefore, the soil has to be reinvestigated and sampled by the Navy's contractor and Adanta will provide oversight on behalf of EPA Region 9 to evaluate the sampling collection procedure as it happens and will alert the Navy's contractor sampling personnel of any issues that may affect the sample integrity.

3.1 SCOPE OF WORK

The field work for this project will consist independent assessment of the concentrations of radionuclides of concern (ROCs) present at radiologically impacted sites in Parcel G at HPNS. This will be accomplished through the following two activities: 1) field oversight by the Oversight Team of the Navy contractor's collection of sample from radiologically impacted soil and former building sites in Parcel G, and 2) independent analysis of split soil samples from approximately 2.5% of the environmental samples by NAREL and approximately 0.25% by Pace Analytical (Sr-90 only). All primary and split soil samples will be analyzed for ROCs.

Split samples will be collected from a total of 63 Trench Units (TUs) associated with former sanitary sewers and storm drains in Parcel G over two phases as well as from former Buildings 317,



364, and 365 and the Building 351A Crawl Space Soil Units. The sampling procedure is divided into two phases. In Phase 1, split samples will be collected from 21 TUs in Parcel G that will be fully excavated. Soil previously used as backfill will be sent through the S3 soil sorter in 200 cubic yard batches. The Navy contractor will collect 25 systematic samples from the S3 conveyor belt for each batch and, if the S3 alarms indicate there is radiological contamination, they will collect a biased sample from soil that set off the alarm. Each of the initial 21 trenches will also be over-excavated by 6 inches (floor and sidewalls). This over-excavated soil will be kept separate from the backfilled soil and will also be segregated in 200 cubic yard batches, or less if the trench is small. In Phase 2, the remaining 42 trenches, if none of the first 21 are contaminated, will be sampled with soil cores. If there is a radiologically contaminated sample from any of the first 21 trenches, then all 42 trench locations in Phase 2 would have to be fully excavated and sampled in the same manner as in Phase 1.



4.0 GENERAL SAFE WORK PRACTICES



In addition to the task-specific work practices and restrictions identified in the original HASP, the following general safe work practices are to be followed when conducting work onsite:

- Eating, drinking, chewing gum or tobacco, taking medication, or smoking in contaminated or potentially contaminated areas or where the possibility for the transfer of contamination exists is prohibited.
- Washing hands and face thoroughly upon leaving a contaminated or suspected contaminated area.
- If a source of potable water is not available at the work site that can be used for hand washing, the use of waterless hand cleaning products or hand wipes will be used, followed by actual hand washing as soon as practicable upon exiting the site.
- Plan and mark entrance, exit, and emergency evacuation routes.
- Rehearse unfamiliar operations prior to implementation.
- Buddies should maintain visual contact with each other and with other onsite team members by remaining near assist each other in case of emergency.
- Establish appropriate safety zones including support, contamination reduction, and exclusion zones.
- Minimize the number of personnel and equipment in contaminated areas (such as the exclusion zone). Non-essential vehicles and equipment should remain within the support zone.
- Establish appropriate decontamination procedures for leaving the site. Immediately report all injuries, illnesses, and unsafe conditions, practices, and equipment to the SSHO.
- Observe co-workers for signs of toxic exposure and heat or cold stress.
- Inform co-workers of potential symptoms of illness, such as headaches, dizziness, nausea, or blurred vision.

Coronavirus Disease 2019 (COVID- 19) Precautions

Due to the recent COVID-19 pandemic, personnel training, and site control procedures to minimize the potential transmission and spread of this disease will be implemented. The Worker Hazard/Exposure Assessment for the planned site activities is considered Lower Risk. The control procedures will include the following actions and will be regularly reviewed and updated to incorporate the most up-to-date guidance:

- Maintain social distancing protocol of 6-foot distance from coworkers.
- Avoid shaking hands and any other social behavior that could result in personal contact.



- Wear gloves and an approved cloth face mask whenever practical. Ensure that face mask covers both the mouth and nose as per the Centers for Disease Control (CDC) guidance on approved cloth face covers (<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/diy-cloth-face-coverings.html>).
- Wash hands often with soap and water for at least 20 seconds especially after having been in a public place, or after blowing your nose, coughing, or sneezing.
- If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- If an individual must cough or sneeze, they should do so into a cloth or tissue. If this is not available, use an elbow. Throw used tissues into trash immediately.
- Frequently clean and disinfect regularly touched surfaces.
- Monitor self and coworkers for potential symptoms of infection. If infection is suspected, the individual must not remain on the job site.

Regularly review and comply with the most current CDC guidelines on preventing the spread of the coronavirus that causes COVID-19. The most current guidelines can be found at <https://www.cdc.gov/coronavirus/2019-ncov/index.html>.



5.0 HAZARD ASSESSMENT AND CONTROLS

This section provides references regarding the chemical, physical, and biological hazards which may be associated with activities that are to be conducted as part of the scope of work. With the potential exception of the COVID-19 pandemic, it is anticipated that health hazards presented by biological hazards will be minimal.

5.1 RADIOLOGICAL HAZARD

Past investigations have revealed the presence of radionuclides within the soils at the project site at low concentrations. Cs-137 (cesium-137), Pu-239 (plutonium-239), Ra-226 (radium-226), Sr-90 (strontium-90), Th-232 (thorium), and U-235+D (uranium-235+D, including protactinium-231, Th-227, and Ra-223) are the known or suspected radionuclides present at the site.

The hazards associated with radionuclides is radiotoxicity. Radiation and radioactive material pose two distinct hazards. In radioactive decay, some radionuclides, and their daughter products, emit gamma radiation. This radiation poses a hazard when the radioactive material is outside the body. Uranium-235+D emit alpha radiation which is a hazard only if the radioactive material is taken into the body. This material can be taken into the body by breathing contaminated dust or ingesting contamination transferred from a worker's hands or clothes. Decay products of uranium, thorium, etc. emit gamma radiation and beta radiation. Beta radiation is a hazard both inside and outside the body which can give skin redness and hair loss, radiation burns, acute radiation syndrome and can cause cancer later.

The workers will follow all sample collection practices, and wear appropriate PPE as specified in this HASI. Examples of onsite practices that are to be observed that will protect workers from exposure via ingestion or skin contact include the following:

- No hand-to-mouth activities onsite (eating, drinking, smoking, etc.).
- Washing hands upon leaving the work area and prior to performing any hand to mouth activities.
- Wearing surgeon's-style glove whenever handling potentially contaminated media including soils, hand tools, and sample containers.

5.2 PHYSICAL HAZARDS

The following is a list of physical hazards that may be encountered at the site or may be present during the performance of site activities.



5.2.1 Slips, Trips, and Falls

During various site activities there is a potential for slip, trip, and fall hazards associated with wet, steep, or unstable work surfaces. To minimize hazards of this nature, personnel will be required to exercise caution, and use appropriate precautions (restrict access, guardrails, lifelines and/or safety harnesses) and other means suitable for the task at hand.

5.2.2 Cuts/Lacerations

The potential for cuts/lacerations may occur when moving or traversing debris, clearing vegetation to gain sampling location access, or other activities that may occur when collecting soil samples in the field. Protective measures include the following:

- Cut away from yourself and not towards others.
- Use only sharp cutting implements with secured handles.
- Do not place items to be cut on your knee or in your other hand.
- Where possible, wear a cut resistant glove at least on your non-knife hand.
- Carry all glassware in hard sided containers to minimize breakage and lacerations in the event of a fall.

5.2.3 Heat/Cold Stress

It is necessary for the field team to be aware of the signs and symptoms and the measures appropriate to prevent heat/cold stress. If such conditions are encountered use the following information on heat stress recognition, prevention, and control.

Ambient temperature extremes during this task may occur during performance of hazardous work depending on the project schedule. Work performed when ambient temperatures exceed 70 degrees Fahrenheit (°F) may result in varying levels of heat stress such as heat rash, heat cramps, heat exhaustion, and/or heat stroke. These conditions can be debilitating and, when extreme, they can be fatal. An understanding of the importance in preventing heat/cold stress, coupled with worker awareness of the signs and symptoms of overexposure, can significantly reduce the potential for adverse health effects.

The four heat related disorders to monitor while performing work onsite include Heat Rash, Heat Cramps, Heat Exhaustion, and Heat Stroke.



Heat Rash

This condition affects the skin. It occurs in situations where the skin remains wet most of the time. The sweat ducts become plugged and a skin rash soon appears.

Signs and Symptoms:

- Skin rash will appear on affected areas of the body.
- Tingling or prickling sensation will be felt on the affected areas.

Heat Cramps

Heat cramps are muscle pains, usually in the lower extremities, the abdomen, or both, that occur after profuse sweating with accompanying salt depletion. Heat cramps most often afflict people in good physical condition, who overwork in conditions of high temperature and humidity. Untreated, heat cramps may progress to heat exhaustion.

Signs and Symptoms:

- Cramps in the extremities and abdomen that begin suddenly during vigorous activity.
- Heat cramps can be mild with only slight abdominal cramping and tingling in the extremities, but more commonly present intense and incapacitating pain in the abdomen and extremities.
- Respiration rate will increase, decreasing after the pain subsides.
- Pulse rate will increase.
- Skin will be pale and moist.
- Body temperature will be normal.
- Generalized weakness will be noted as the pain subsides.
- Loss of consciousness and airway maintenance are seldom problems with this condition.

Treatment for heat cramps is aimed at eliminating the exposure and restoring the loss of salt and water.

Heat Exhaustion

Heat exhaustion is a more severe response to salt and water loss, as well as an initial disturbance in the body's heat-regulations system. Like heat cramps, heat exhaustion tends to occur in people working in hot environments. Heat exhaustion may progress to heat stroke. Treatment for heat exhaustion is similar in principle to that for heat cramps.



Signs and Symptoms:

- Heat exhaustion may be accompanied present by a headache, fatigue, dizziness, or nausea with occasional abdominal cramping.
- More severe cases of heat exhaustion may result in partial or complete temporary loss of respiration and circulation due to cerebral ischemia.
- Sweating will be profuse.
- Pulse rate will be rapid and weak.
- Respiration rate will be rapid and shallow.
- The skin will be pale and clammy.
- The body temperature will be normal or decreased.
- The person could be irritable and restless.

Heat Stroke

Heat stroke is caused by a severe disturbance in the body's heat-regulating system and is a profound emergency: The mortality rate ranges from 25% to 50%. It can also occur from having too much exposure to the sun or prolonged confinement in a hot atmosphere. Heat stroke comes on suddenly. As the sweating mechanism fails, the body temperature begins to rise, reaching 106 °F or higher within 10 to 15 minutes. If the situation is not corrected rapidly, the body cells are literally cooked, and the central nervous system is irreversibly damaged.

The treatment for heat stroke is aimed at maintaining vital functions and causing as rapid a decrease of body temperature as possible.

Signs and Symptoms:

- The person's pulse will be strong and bounding.
- The skin will be hot, dry, and flushed.
- The worker may experience headache, dizziness, and dryness of mouth.
- Seizures and coma can occur.
- Loss of consciousness and airway maintenance problems can occur.

Controlling Heat Stress

The following control measures are only guidelines for heat related emergencies. Actual training in emergency medical care or basic first aid is recommended. Employees will monitor one another for signs of heat stress. If indications of heat stress occur, the following corrective measures will be performed:



- Inform affected workers of the signs and symptoms of heat stress and encourage co-worker observations.
- Schedule tasks that are physically demanding in early morning and late afternoon timeframes when heavy loads would be less of an issue.
- Provide adequate liquids to replace lost body fluids.
- Personnel must replace water and salt lost from sweating.
- Personnel must be encouraged to drink more than the amount required to satisfy thirst.
- Thirst satisfaction is not an accurate indicator of adequate salt and fluid replacement.
- Approximately 1 cup of cool water every 20 minutes is recommended.
- Replacement fluids can be commercial mixes such as Gatorade®.
- Move affected persons into a shaded cool rest area (below 77 °F is best).
- Personnel shall remove impermeable protective garments during rest periods.
- Personnel shall not be assigned other tasks during rest periods.

One of the following biological monitoring procedures may be utilized to monitor heat stress concerns:

- Heart rate (HR) shall be measured by the pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats per minute (bpm).
- If the HR is higher, the next work period should be shortened by 10 minutes (or 33%), while the length of rest period stays the same.
- If the pulse rate is 100 beats/minute at the beginning of the next rest period, the following work cycle should be shortened by 33%.
- The length of the initial work period will be determined by using Table 5-1.

Table 5.1 Permissible Heat Exposure Threshold Limit Values

Work-Rest Regimen	Workload		
	Light	Moderate	Heavy
Continuous	80.0 °F	80.0 °F	77.0 °F
75% Work – 25% Rest, Each Hour	87.0 °F	82.4 °F	78.6 °F
50% Work – 50% Rest, Each Hour	88.5 °F	85.0 °F	82.2 °F
25% Work – 75% Rest, Each Hour	90.0 °F	88.0 °F	86.0 °F

NOTE: External temperatures more than those stated above shall be regarded as inclement weather.



Temperature Extremes – Heat Stress Indication

Temperature extremes are considered inclement weather. Steps should be taken to the extent possible protect site personnel from the effects of heat stress and the sun. Control measures include the following:

- Watch for signs of heat stress/exhaustion.
- Provide fluid replacement.
- Provide adequate number of breaks within a cooler environment.

Care should be exercised when working outdoors due to harmful effects of the sun. To reduce the potential for sunburn and melanoma use the following measures:

- Wear a hat that shades the face, neck, and ears.
- Apply sunscreen with a Sun Protection Factor of 15 or higher liberally on any exposed skin at least 15 minutes before going outside, then at least every 2 hours, more if you are sweating a lot.
- Plan/provide suitable equipment to offer shade to avoid the midday sun since the sun's ultraviolet rays are most intense between 10 A.M. and 4 P.M. and can damage your skin even on hazy days. Portable canopies over the sample station are an example of this.
- Wear wrap-around sunglasses to protect the eyes and delicate skin around them.

Table 5-2 Heat Strain Systems

Stop work if any worker demonstrates any of the following:	
Heart Rate	Sustained (several minutes) heart rate minus worker's age > than 180 beats per minute (bpm) measured at any time.
Body Core Temperature	> 101.3 °F (38.5 degrees Celsius)
Recovery Heart Rate	> 110 bpm (measured 1 minute after peak work effort)
Other Symptoms	Sudden and severe fatigue, nausea, dizziness, or headache
Individuals may be at greater risk of heat stress if any of the following occur:	
<ul style="list-style-type: none">• Profuse sweating is sustained over hours.• Weight loss over a shift is > 1.5% of beginning body weight.• 24-hour urinary sodium excretion is less than 50 nanomoles.	

5.2.4 Vehicle and Equipment Traffic

Field activities performed as part of this project may affect traffic in some areas at the site. To minimize the potential for injuries associated with potential vehicle hazards, site personnel will be instructed to maintain awareness of traffic and moving equipment when performing site activities. When working near roadways, site personnel will wear high visibility vests and use the traffic



cones during the sampling activities in the traffic areas, as necessary, while minimizing the disruption of traffic.

5.3 BIOLOGICAL HAZARDS

In addition to hazards associated with the global spread of the COVID-19 pandemic, many of the planned site activities will occur outside in areas that are not improved or maintained. As a result, the potential for encountering biological and/or bloodborne pathogen hazards exists. Insect/animal bites and stings, poisonous plants, and inclement weather are natural hazards that may be present given the location of activities to be conducted. In general, avoidance of areas of known infestation or growth will be the preferred exposure control for insects/animals and poisonous plants. The following information is provided as a precaution to help recognize and avoid these types of hazards.

The onsite SSHO will screen the area for biological hazards during the initial site visit and will discuss any problems with the site personnel. Before initial assignment on the project, personnel with known allergic responses to insect stings and/or poisonous plants will make the SSHO aware of this condition. In addition, during field activities at the site, specific measures including avoidance and minimization measures will be taken during fieldwork at the site. Originating in late 2019, the transmission and spread of the COVID-19 caused by the SARS-CoV-2 virus is now of global concern. As a result, personnel training and site control procedures to minimize the transmission and spread of this disease will always be implemented and adhered to.



6.0 SITE CONTROL

Adanta will delineate work zones and use these work zones in conjunction with decontamination procedures to prevent the spread of contaminants into previously unaffected areas of the site. It is anticipated that a three-zone approach will be used during work at this site. This approach will be comprised of an exclusion zone, a contamination reduction zone (CRZ), and a support zone. It is also anticipated that this approach will control access to site work areas, restricting access by the general public, minimizing the potential for the spread of contaminants, and protecting individuals who are not cleared to enter work areas.

6.1 EXCLUSION ZONE

The exclusion zone will be considered the area of known or suspected contamination during intrusive activities only. The area will be marked, and personnel will maintain safe distances. Once intrusive activities have been completed, the potential for exposure is diminished and the area can then be reclassified as part of the CRZ. Therefore, the exclusion zones for this project will be limited to those areas of the site where drilling will take place. Exclusion zones will be delineated as deemed appropriate by the PM, through means such as erecting visibility fencing, barrier tape, cones, and/or postings to inform and direct personnel.

6.2 CONTAMINATION REDUCTION ZONE

The CRZ will be a buffer area between the exclusion zone and any area of the site where contamination is not suspected. This area will also serve as a focal point in supporting exclusion zone activities. This area will be delineated using barrier tape, cones, and postings to inform and direct facility personnel.

6.3 SUPPORT ZONE

The support zone for this project will include a staging area where site vehicles will be parked and where food and drink containers will be maintained. The support zones will be established at areas of the site where away from potential exposure to site contaminants during normal working conditions or foreseeable emergencies.

6.4 SITE VISITORS

Site visitors for the purpose of this document are identified as representing the following groups of individuals:

- Personnel invited to observe or participate in operations by Adanta.
- Regulatory personnel.



- Property Owners.
- Other authorized visitors.

Site visitors wishing to enter the exclusion zone will be required to produce the necessary information supporting clearance. This shall include information attesting to applicable training.

Visitors are required to observe the protective equipment and site restrictions in effect at the site at the time of their visit. Visitors entering the exclusion zones during ongoing operations shall be accompanied by an Adanta representative. Visitors not meeting the requirements, as stipulated in this HASP, for site clearance will not be permitted to enter the site operational zones during planned activities.

Any incidence of unauthorized site visitation will cause the termination of onsite activities until the unauthorized visitor is removed from the premises. Removal of unauthorized visitors will be accomplished with support from Navy or local law enforcement personnel.

6.5 SITE SECURITY

Site security will be accomplished using Adanta field personnel. Adanta will retain complete control over active operational areas. As this activity takes place at a facility open to public access, the first line of security will take place using exclusive zone barriers, site work permits, and any existing barriers at the site to restrict access by the general public.

As personnel will be working in proximity to one another during field activities, a supported means of communication between field personnel will not be necessary. External communication will be accomplished by using telephones at predetermined and approved locations. External communication will primarily be used for the purpose of resource and emergency resource communications.

